WELL REPORT

DAVIS OIL COMPANY: ROULETTE #1

SAN JUAN COUNTY, NEW MEXICO

LOCATION

660' from the south line and 660' from the west line, Section 26, Township 22 North, Range 10 West, NMPM.

ELEVATION

6255' Ground: 6261' Kelley Bushing

CONTRACTOR

Allison Drilling Company, Inc., Rig #4, Bethlehem S-45, Rotary Tools.

SPUD AND COMPLETION DATA

Well commenced: September 14, 1971
Well completed: October 9, 1971, Plugged and abandoned
Total Depth (Driller) 4635'
Total Depth (Logger) 4636'

Plugging Program:
Surface - 10 cu. ft.
500' - 600' - 35 cu. ft.
2300' - 2450' - 50 cu. ft.
4175' - 4300' - 45 cu. ft.

CONFIDENTIAL

CASING

Surface: 8 5/8" @ 60' w/60 sacks

ELECTRICAL SURVEYS

Dresser Atlas - Induction Electrolog from 66' to 4636'
Dresser Atlas - Densilog from 66' to 4636'
Dresser Atlas - Acoustilog from 2190' to 2465', 3290' to 3620' 4150' to 4636'

FORMATION TOPS

Cretaceous	Depth	KB Datum
Cliff House (Kch)	511'	+5750
Menefee (Kmf)	620'	+5641
Point Lookout (Kpl)	2264'	+3997
Upper Mancos (Kmu)	2403'	+3858
Gallup (Kg)	3332'	+2929
Lower Mancos (Kml)	3606'	+2655
Sanastee (Kms)	3834'	+2427
Greenhorn (Kgh)	4149'	+2112
Graneros (Kgr)	4205'	+2056

FORMATIONS TOPS - CONTINUED

Cretaceous	Depth	KB Datum
Dakota "A" (Kda)	4240'	+2021
Dakota "B" (Kdb)	4343'	+1918
Dakota "D" (Kdd)	4426'	+1835
Dakota Burro Canyon (Kdbc)	4508'	+1753
Jurassic		
Morrison (Jm)	4584'	+1677
Total Depth (Driller)	4635'	+1526
Total Depth (Logger)	4636'	+1525

WELL CUTTINGS

10' samples from 2150' to 2450'
10' samples from 3300' to 4635'
Samples described below from 2150' to 2450': 3300' to 4635' (Driller TD)

SAMPLE DESCRIPTION

2150-2160 80% sh, gry: 20% sd wht, fn-grn, abn coal

2160-2170 As above

2170-2180 As above, w/incr in fn-grn ang-subrnd, wht sd

2180-2190 60% sh: 40% sd, as above, Tr coal

2190-2200 As above

2200-2210 40% sh: 30% sd, lt gry, wht, fn-med grn, silty: 25% coal

2210-2220 60% sh: 15% sd: 20% coal

2220-2230 60% sh: 25% sd: 10% coal

2230-2240 As above

2240-2250 70% sh: 20% sd: 5% coal

2250-2260 60% sh: 20% sd: 10% slst, dk gr: 5% coal

TOP POINT LOOKOUT 2264' LOGS

2260-2270 As above

2270-2280 As above

2280-2290 50% sh: 40% sd, fn-med grn, lt gry-wht, SA-SR, drty, good por, N-S: calc cement

2290-2300 20% sh: 75% sd, as above, N-S: Tr coal

SAMPLE DESCRIPTION - CONTINUED

2300-2310 10% sh: 85% sd, as above, N-S: Tr coal

2310-2320 20% sh: 80% sd, as above, Tr coal

2320-2330 25% sh: 70% sd, as above, sl/less por

2330-2340 40% sh: 55% sd, as above: 5% coal: Trip @2335'

2340-2350 40% sh: 55% sd, as above

2350-2360 40% sh: 55% sd, as above

2360-2370 40% sh: 55% sd, as above

2370-2380 45% sh: 50% sd, as above

2380-2390 35% sh: 60% sd, as above

2390-2400 45% sh: becoming darker: 50% sd, as above

TOP UPPER MANCOS 2403' LOGS

2400-2410 50% sh, as above: 45% sd, as above

2410-2420 65% sh: 30% sd

2420-2430 65% sh: 30% sd

2430-2440 70% sh: 25% sd

2440-2450 65% sh: 30% sd

2450-3300 No sample

3300-3310 85% sh, gry, sl/sdy, blky fissile: 10% sd, gry, v-f-g, N-S

3310-3320 As above

3320-3330 As above, w/Tr blk carb sh

TOP GALLUP 3332' LOGS

3330-3340 As above, w/sm lt-gry slst

3340-3350 As above

3350-3360 70% sh, as above: 25% sd, f-g, wht-lt gry, N-S
Trip @ 3353'

3360-3370 As above

3370-3380 75% sh: 20% sd, f-g, silst gry

3380-3390 85% sh, as above: 10% sd & silst, N-S

SAMPLE DESCRIPTION - CONTINUED

3390-3400 As above

3400-3420 As above

3420-3430 75% sh, as above: 20% sd & slst, as above, N-S

3430-3440 85% sh, as above: 10% sd & slst, as above, N-S

3440-3450 As above

3450-3460 85% gry sdy sh: N-S: 10% sdst, as above

3460-3470 As above, N-S

3470-3480 As above, N-S

3480-3490 85% gry sdy sh: 10% sdst, gry, f-g, tite, N-S

3490-3500 As above

3500-3510 75% sh, as above: 20% sdst, as above

3510-3520 85% sh, as above: 10% sdst, as above

3520-3530 90% sh, dk gry-lt gr, sl/sdy: 5% sd, f-g, gry

3530-3540 As above

3540-3550 85% sh, as above: 10% sdst, gry, v-f-g, hd & tite N-S

3550-3560 As above

3560-3570 90% sh, as above: 5% sdst & slst, N-S

3570-3590 As above

3590-3600 As above

TOP LOWER MANCOS 3606' LOGS

3600-3610 85% sh, as above: 10% sdst & slst, as above, N-S

3610-3620 As above

3620-3630 As above

3630-3640 As above

3640-3650 90% sh, as above: 5% sdst & slst, as above, N-S

3650-3700 As above

3700-3710 90% sh, dk gr, sl/sdy: 5% sd & slst, as above

3710-3730 As above

SAMPLE DESCRIPTION - CONTINUED

3730-3740 As above, sl/incr sd

3740-3750 80% sh, as above: 15% sdst, f-g, gry-ang, N-S

3750-3760 As above

3760-3770 75% sh, as above: 20% sd, as above

3770-3780 80% sh, as above: 15% sd, as above

3780-3790 As above

3790-3800 As above

3800-3810 70% sh, as above, w/20% sd, f-g, gry, N-S

3810-3820 As above

3820-3830 As above

TOP SANASTEE 3834' LOGS

3830-3840 80% sh, as above: 15% sd, as above

3840-3850 85% sh, as above: 10% sd, as above

3850-3870 As above

3870-3880 85% sh: 10% sd

3880-3890 85% sh: 10% sd

3890-3900 As above

3900-3910 As above, sl/incr sd

3910-3920 95% dk gy fissile sh

3920-3930 95% dk gr, blk fissile sh

3930-4010 As above

4010-4020 95% sh, dk gy, blk fissile w/sm lt gry silty sh, non calc

4020-4030 As above w/ abn bentonite

4030-4040 As above

4040-4050 As above, sm Ind quarty grains

4050-4060 As above, sh becoming sl/more sdy

4060-4070 95% sh, as above, w/sm lt gry silty sh: Tr bentonite, sh lg ind quarty grains

SAMPLE DESCRIPTION - CONTINUED

4070-4110 As above

4110-4120 90% sh, as above, sl/calc: 5% sd, v-f-g, gry, N-S tite

4120-4130 As above, sh becoming more calc

4130-4140 85% sh, as above, w/10% sd, v-f-g, tite, N-S

TOP GREENHORN 4149' LOGS

(Note trip @ 4141' Geolograph Pipe strip found pipe tally 28' short. Reset Geolograph to 4167')

4160-4170 85% sh, dk gr, calc, sl/sdy: 10% v/shly, tite, sdst, f-g, frag of calcite

4170-4180 As above sl/decrease in sd

4180-4190 90% sh, as above: 5% sd, as above

4190-4200 As above

TOP GRANEROS 4205' LOGS

4200-4210 95% dk gry-blk sh, sl/sdy, v/calc: Tr sd, f-g, gry, sm calcite frag, sm ind quartz grns. (large)

4210-4220 As above

4220-4230 As above, sh becoming sl/more sdy

4230-4240 As above, abnt, bentonite

TOP DAKOTA "A" 4240' LOGS

4240-4250 As above, abnt bentonite (Good drilling break @4240')

4250-4260 20% sh, as above: 75% sdst, f-med-grn, gry, clean well sorted good P&P, v/sl/lite blue fluor, no cut
DST #1 4240-4263.

4260-4270 After DST #1: 95% sh, dk crvings

4270-4280 90% sh, as above: 5% sd, f-med-gry, N-S

4280-4290 As above

4290-4300 As above, sl/inc in sd

4300-4310 85% sh: 10% sd

4310-4320 20% sh, as above: 75% sd, lt-gry-wht, f-g, clean well sorted good P&P, calc cement, moderately friable, no staining, v/sl pale blue fluor, no cut, SA-SR

SAMPLE DESCRIPTION - CONTINUED

4320-4330 60% sh, as above: 35% sd, as above, N-S

4330-4340 75% sh, as above: 25% sd, as above

TOP DAKOTA "B" 4343' LOGS

4340-4350 80% sh, gry: 15% sd, as above

4350-4360 As above, w/abn bentonite (bentonite shows bright yellow fluor)

4360-4370 60% sh: 35% sd, lt gr-wht, abn clear grns, f-med-grn, good P&P, N-S in sand (bentonite slivers show bright yellow fluor) SA

4370-4380 50% sh: 50% sd, as above

4380-4390 50% sh: 50% sd, as above

4390-4400 75% sh: 25% sd, as above

4400-4410 80% sh: 15% sd, as above

4410-4420 95% sh, as above

TOP DAKOTA "D" 4426' LOGS

4420-4430 95% sh, as above: Drlg break @4427'

4439 Circ Sample
30" - 90% sh: 5% sd, gry, f-g, shly, N-S

4430-4440 As above

4440-4450 As above, abn ind grains sd appears clay filled

4450-4460 95% sh, gr-blk blky

4460-4500 As above

TOP DAKOTA BURRO CANYON 4508' LOGS

4500-4510 95% sh, sm sdy lt gry mostly crvings

4510-4520 As above

4520-4530 As above

4530-4540 80% sh, as above: 15% sd, wht, med grn, SA, N-S
cement is non calc

4540-4550 70% sh, 25% sd, as above

4550-4560 As above

@4564 drlg break to less than 1 min/ft

SAMPLE DESCRIPTION - CONTINUED

4560-4570 80% sh: 15% sd, as above, sm lg ang ind grns

4570-4580 As above

4580-4585 50% sh: 50% sd, wht-med grn, clean well sorted SA-SR good P&P, N-S: abn bentonite

TOP MORRISON 4584' LOGS

4580-4590 40% sh: 40% sd, as above: 15% lg, SA-SR, ind grains clear

4590-4600 25% clear ind lg, SA-SR grns (Drlg break @4693')

4600-4620 As above

4620-4630 10% sh, grnsh: 80% congl sd w/abundant chert, N-S

4635 TD as above

DRILLING TIME

Five foot drilling time from 3775' to 4635' (Driller TD) is listed below.

05-10-15-20-25-30-35-40-45-50-55-60-65-70-75-80-85-90-95-100

3775-3800 -24-40-25-24-23
3800-3900 18-22-23-16-20-25-24-23-24-23-24-27-26-25-28-22-30-28-18-20
3900-4000 21-29-30-39- -23-20-18-15-18-21-23-28-24- -26-17-27-22-18
4000-4100 24-22-19-22-22-28-23-21-24-24-23-26-29-27-25-24-24-26-33-26
4100-4200 26-27-27-17-30-44-42-46-Made 28' correction 25-23-24
4200-4300 28-18-27-29-25-29-26-22-14-10-11-30-25-21-17-08-11-15-17-11
4300-4400 17-13-17-17-19-25-20-22-16-11-11-08-09-09-11-11-09-09-30-24
4400-4500 26-28-30-38-45-26-17-13-13-13-15-15-18-24-17-17-19-20-22-34
4500-4600 12-12-08-16-16-17-15-18-19-17-19-19-03-03-03-28-48-19-03
4600-4635 03-04-06-08-12-12-12 TD

CHRONOLOGICAL LOG

09-24-71 Rigging up Allison Drilling Company, Inc., Rig #4

09-25-71 630' - Wt. 8.9: Vis 40; Drilled Rat and Mouse hole, started drilling under surface @9:00 P.M. 9-24-71.
Drlg Rat & Mouse hole - 11 hrs; Drill cement - 3/4 hr;
Drill 1 ft pits - 9 3/4 hrs; Work on pump - 1 hr; Wait on water; Work on light plant - 1/2 hr.

09-26-71 1117' - Wt. 8.9; Vis 38
Drlg - 14 1/2 hrs; Trip - 5 1/4 hrs; Ream 80' - 1 hr;
Pump repair - 1 1/2 hrs; Repairs - 1 hr; Jet - 1/2 hr;
Rig service - 1/4 hr

09-27-71 ø 1835' - Wt. 8.9; Vis 38
Drlg - 18 hrs; Trip 3 1/4 hrs; Rig service - 1/4 hr;
Repair pump - 2 hrs; Jet - 1/4 hr; Ream - 1/4 hr

CHRONOLOGICAL LOG - CONTINUED

09-28-71 ø 2510', sh - 2° @ 1762'; Bit #4, S-4 Reg.
In @ 2335' - 175' - 4 1/2 hrs;
Drlg 16 1/4 hrs; Trip 5 1/4 hrs; Rig service - 1/4 hr;
Pump repair - 2 1/4 hrs

Mud properties: Wt. 9.0; Vis 38; WL. 6.0; Ph. 8.5; C-2/32

09-29-71 2960' Trip, sh 1° @ 2960', Bit #4, 625' 23 3/4 hrs
Bit #5, S-4 Reg.
Drlg - 19 hrs; Trip - 4 hrs; Suru - 1/4 hr; Rig
Service - 1/4 hr; Jet - 1/2 hr

Mud Properties: Wt. 9.1; Vis 40; Wl. 6.0

09-30-71 Trip @ 3353' made 393', sh Bit #5, 7 7/8", S-4 Reg.
Made 393' in 19 1/2 hrs; RPM 120 wt on Bit 25,000#
Drlg - 19 1/2 hrs; Trip - 2 1/4 hrs; Ream & wash to Btm -
1/4 hr; Pump - 3/4 hr; Rig service - 1/4 hr; Jet - 3/4 hr;
Survey - 1/4 hr

Mud Properties: Wt. 9.0; Vis 37

10-01-71 ø 3825' - 172' in 24 hrs, sh & sd, 1° @3353'
Bit #6 - 7 7/8" S-4 Reg in @ 3353' 172 - 13 3/4 hrs
RPM 125 Pump 350 St. 58
Drlg - 13 3/4 hrs; Trip 5 3/4 hrs; Rig service - 3/4 hr;
Repairs - 3/4 hr; Air comp - 3 1/2 hrs; Pump repair 1/4 hr

Mud Properties: Wt. 9.0; Vis 38; Wl. 6.0; Ph. 8.5

10-02-71 Trip @3734', Made 209' in 24 hrs. 3/4° @3734'
Bit #7 - 7 7/8" - S-4 Reg in @3525' made 209' in
16 3/4 hrs. Wt on Bit 30,000#, RPM 125, Pump press 350
@58 SPM
Drlg - 16 3/4 hrs; Trip - 5 3/4 hrs; Pump - 1/2 hr;
Jet - 1/4 hr; Survey - 1/4 hr; Rig service-1/2 hr

Mud Properties: Wt. 9.0; Vis 37

10-03-71 ø 3902' - sh - 3/4° @3734', Bit #8, 7 7/8" Sec S-4 Reg
in @ 3734' - 168' - 14 1/4 hrs. Wt on bit 30,000#, 110 RPM,
Pump 350 @ 58 SPM
Drlg - 14 1/4 hrs; Trip - 7 hrs; Rig service - 1/4 hr;
Jet - 1/4 hr; Cut drlg line - 2 hrs; Pump repair - 1/4 hr

Mud Properties: Wt. 9.1; Vis 39; Wl. 6.0; Ph. 8.5

10-04-71 ø 4106' - sh - 3/4° @ 3734, Bit #9, 7 7/8" Sec S-4 Reg
in @ 3921'. 185' in 16 1/2 hrs. Wt. 30,000# RPM 110,
Pump 350 @ 58
Drlg - 18 1/2 hrs; Trip - 5 hrs; Rig service - 1/4 hr
Jet - 1/4 hr

Mud Properties: Wt. 9.1; Vis 40; Wl. 6.0; Ph. 8.5

CHRONOLOGICAL LOG - CONTINUED

10-05-71 4263' - Trip for DST #1, Bit #10, Sec M4N Reg in @ 4141' out @ 4263' (122' in 7 3/4 hrs) Wt on Bit 30,000# RPM 100 Pump press 350 psi @ 58 SPM
Drlg - 12 1/4 hrs; Trip - 9 1/2 hrs; Circ for DST #1 - 2 hrs; Rig service - 1/4 hr;

Mud Properties: Wt. 9.1; Vis 40;

10-06-71 4263' - Run DST #1 - 13 hrs; pull out of hole and run and pull DST tool - 11 hrs; Work on pump and change out motor on pump

10-07-71 Trip @ 4501 - sd & sh - Bit #11, Sec M4N, 4263-4501 - 238' 16 hrs, 40,000# @ 80 RPM, Pump 600-42
Drlg - 16 hrs; Trip 2 3/4 hrs; Rig service - 1/2 hr; Pump - 1 3/4 hrs; Wash to btm - 2 1/2 hrs; Circ sample - 1/2 hr

Mud Properties: Wt. 9.6; Vis 37; Wl. 6.0; Ph. 8.5

10-08-71 4635' TD - Running Electrical Logs

10-09-71 4635' TD - Running DST #2

10-10-71 Run DST #2 (4438 - 4470) Layed down drill collars, P & A

BIT RECORD

No.	Size	Make	Type	Serial Number	In	Out	Footage	Hours
1	7 7/8	Sec	S-3J	340825	60'	1117'	1057'	22.50
2	7 7/8	Sec	S-3J	326641	1117'	1762'	645'	17.00
3	7 7/8	Sec	S-3J	341737	1762'	2335'	573'	13.25
4	7 7/8	Sec	S-4	275782	2335'	2960'	625'	23.75
5	7 7/8	Sec	S-4	236785	2960'	3353'	393'	19.50
6	7 7/8	Sec	S-4	202945	3353'	3525'	122'	14.25
7	7 7/8	Sec	S-4	346880	3525'	3734'	209'	16.75
8	7 7/8	Sec	S-4	276494	3734'	3921'	187'	16.75
9	7 7/8	Sec	S-4	276601	3921'	4141'	220'	20.75
10	7 7/8	Sec	M4N	276606	4141'	4263'	122'	7.75
11	7 7/8	Sec	M4N	277621	4263'	4501	238'	16.00
12	7 7/8	Sec	M4N	276501	4501'	4635'	134'	6.25

TOTAL ROTATING HOURS - 194.50.

DEVIATION RECORD

No.	Degree	Depth	Date
1	2 o	1762'	9-28-71
2	1 o	2960'	9-29-71
3	1 o	3353'	9-30-71
4	3/4 o	3734'	10-02-71
5	1/2 o	4635'	10-07-71

ELECTRICAL SURVEY CALCULATIONS

Formation	Depth	Rt	Porosity Density	Porosity Acoustilog	SW	Rw
Dakota "B"	4346-80	12r	19%	18%	70	.27
Dakota "B"	4380-96	(tight)				
Dakota "D"	4426-38	40	15%	15%	82	.7
Dakota "D"	4438-42	38	19%	15%	65	.7
Dakota "D"	4480-86	40	20%	16%	58	.7
Dakota "D"	4486-88	40	19%	16%	62	.7
Dakota "D"	4488-94	35	21%	16%	60	.7
Dakota "D"	4468-74	60	17%	16%	58	.7
Dakota "A"	4240-50	14	14%	13%	91	.27
Dakota "A"	4288-92	19	14%	13%	80	.27
Dakota Burro Canyon	4542-45	70	18%	19%	100	5.0
Dakota Burro Canyon	4547-60	270	16%	17%	91	5.0

DRILLSTEM TEST RECORD

DST #1: 4240-4263
Opened tool 15 minutes, shut in for 45 minutes
2nd flow 60 minutes, 2nd shut in 90 minutes
1st flow - weak blow increased to strong in 5 minutes
2nd flow - opened strong blow, steady throughout test.
No gas to surface. Recovered 2250' v/sl gas cut water (sl/salty - Rw = .44 @75° = 13,000 ppm chlorides)
I.H. 2237, F.H. 2201, 1st flow - IF - 36; 1st flow - FF-363; 1st SIP 2055/45 minutes; 2nd flow - IF - 423
FF 1016; 2nd SIP 1971/90 minutes

DST #2: 4438-4470
Opened tool 15 minutes, shut in 45 minutes
2nd flow 90 minutes; 2nd SI 90 minutes
1st flow - strong blow after 1 minute, continued throughout test: 2nd flow opened with strong blow decreasing in 40 minutes to good blow. GTS in 53 minutes TSTM flowed water in 58 minutes at rate of 300 gal per hr. Rw measured 3.0 @70°. IH 2281, FH 2220, 1st flow IF 465, 1st flow FF 1082
1st SIP 2035, 2nd flow IF 1159, 2nd flow FF 1938, 2nd SIP 2052

SUMMATION

This well was spudded September 14, 1971. Surface pipe was set at 60'. Drilling from under surface was commenced September 24, 1971 and well drilled to a total depth of 4635' into the Morrison formation of Jurassic age. The hole was plugged and abandoned October 9, 1971, in accordance with verbal instructions obtained from Mr. P. T. McGrath of the USGS.

This well was evaluated in the following manner:

(1) Careful examination of rotary cuttings of the Point Lookout member of the Mesaverde formation, the Gallup formation, and the Dakota formation.

(2) An Electric logging program that included an IES and bore hole compensated Densilog from total depth to base of surface casing and an Acoustilog over selected intervals.

(3) Two drillstem tests were run, one of the Dakota "A" sand from 4240-4265 and one of the Dakota "D" sand from 4438-4470. Complete results of these tests are contained within this report.

The well ran structurally 53' high to the Northwest Production Kinebeto #1 well located in the NE/4 NW/4 of Section 26, Township 22 North, Range 10 West, San Juan County, New Mexico.

Water samples from both drillstem tests were taken to Core Lab in Farmington, New Mexico, for analysis.

Jim L. Jacobs